ENGLISH TRANSLATION OF THE ANNEXES TO THE INTERNATIONAL PRELIMINARY EXAMINATION REPORT

concentrically one within the other, are mounted at the front end of the syringe. The outer sleeve is provided with an internal thread, into which the rear end of the cannula can be screwed. On the outside, the inner sleeve has a cone, which forms an air-tight conical connection with the complementary, comically constructed central borehole at the rear end of the cannula when the latter is screwed in. It is a disadvantage of this known device that the maximum diameter of the central borehole, at the transition between the syringe and the cannula, is limited appreciably by this inner sleeve.

The US patent 4,993,948 (CAMERON et al) discloses an injection device for dental filling materials, which has a transition segment with a borehole, which, at the transition between the cavity of the syringe body and the borehole of the connecting piece, has a cross-section, which is larger than the lumen of the cannula at the rear end of the latter.

The US patent 4,338,925 (MILLER) discloses a further injection device for bone cement, which comprises a cannula of constant cross section.

Finally, the WO 01/52924 (ULTRADENT PRODUCTS) discloses a syringe, which is equipped with a luer lock connection and suitable for mixing and administering a viscous composition.

It is an object of the invention to provide an injection device, which comprises a connecting piece for a cannula, the narrowest passage opening for the material, which is to be injected, being as large as possible at the transition between the connecting piece and the cannula and not falling below a critical value.

Pursuant to the invention, this objective is accomplished with an injection device, which has the distinguishing features of claim 1.

Further advantageous developments of the invention are characterized in the dependent claims.

The advantages, achieved by the invention, can be seen to lie essentially therein that, due to the inventive injection device,

- a diameter for the outlet opening and for the central borehole of the cannula, which is large relative to the diameter of the cavity of the syringe body, can be attained,
- an appreciable reduction in the injection forces can be achieved,
- in comparison to the state of the art, a lower pressure is possible and
- it is possible to use the device for bone cements in the region of the spinal column.

In a preferred embodiment, the central borehole of the cannula has a constant cross-sectional area in the axial direction. The advantage of this embodiment lies therein, that the injection forces are not increased by constrictions.

In a different embodiment, the cavity of the syringe body has a cross-sectional area $Q > q$, which is orthogonal to the longitudinal axis, the ratio of the cross-sectional area q to the cross-sectional area Q being between 1 and 0.01 and, preferably, between 1 and 2.02.